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Claim 1 (Currently Amended): A node device which newly joins a network formed by a first existing node and a second existing node, the node device comprising:

a virtual connection establisher unit configured to establish a first virtual connection with the first existing node and configured to establish a second virtual connection with the second existing node;

a total metric value calculator unit configured to calculate a first total metric value for the first virtual connection and configured to calculate a second total metric value for the second virtual connection; and

a connection establisher unit configured to establish a connection with only the first existing node when the first total metric value is smaller than the second total metric value, and configured to establish a connection with only the second existing node when the second total metric value is smaller than the first total metric value,

wherein when calculating the first total metric value, the total metric value calculator calculates a first weighted metric value as a product of a metric value of the first virtual connection to the first existing node and a first weighting coefficient representing a number of adjacent nodes to the first existing node, the total metric value calculator also calculates a second weighted metric value as a product of a metric value of a route to the second existing node via the first virtual connection and the first existing node and a second weighting coefficient representing a number of adjacent nodes to the second existing node, and the first total metric value is calculated as a sum of the first weighted metric value and the second weighted metric value divided by the sum of the first and second weighting coefficients, and when calculating the second total metric value, the total metric value calculator calculates a third weighted metric value as a product of a metric value of the second virtual connection to the second existing node and the second weighting coefficient, the total metric value calculator also calculates a fourth weighted metric value as a product of a metric value

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of a route to the first existing node via the second virtual connection and the second existing

node and the first weighting coefficient, and the second total metric value is calculated as a

sum of the third weighted metric value and the fourth weighted metric value divided by the

sum of the first and second weighting coefficients.

Claim 2 (Previously Presented): The node device according to claim 1, further

comprising:

an acquirer unit configured to acquire, from at least one of the first existing node and

the second existing node, a node-node connection information of an adjacent node to one of

the first existing node and the second existing node forming the network,

wherein the weighted metric value calculator unit is configured to calculate the

weighted metric value in accordance with the node-node connection information.

Claim 3 (Previously Presented): The node device according to claim 2, wherein the

node-node connection information includes a node ID for identifying the adjacent node, a

metric value of a route between each of the first existing node and the second existing node to

the adjacent node, and a number of nodes adjacent to the adjacent node.

Claim 4 (Previously Presented): The node device according to claim 3, wherein the

metric value includes at least one of a number of hops, network bandwidth, communication

costs, delay, load, MTU, or reliability.

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Claim 5 (Previously Presented): The node device according to claim 3, wherein the acquirer unit is configured to notify, the first existing node and the second existing node, of a type of a metric value or a combination of metric values to be included in the node-node connection information.

Claim 6 (Currently Amended): A method for generating a network topology in which a new node joins a network formed by a first existing node and a second existing node, the method comprising:

establishing a first of virtual connection between the new node and the first existing node and a second virtual connection between the new node and the second existing node;

calculating a first total metric value for the first virtual connection and a second total metric value for the second virtual connection; and

establishing a connection between the new node and the first existing node when the first total metric value is smaller than the second total metric value; and

establishing a connection between the new node and the second existing node when the second total metric value is smaller than the first total metric value,

wherein when the first total metric value is calculated, a first weighted total metric value is calculated as a product of a metric value of the first virtual connection between the new node and the first existing node and a first weighting coefficient representing a number of adjacent nodes to the first existing node, a second weighted metric value is also calculated as a product of a metric value of a route from the new node to the second existing node via the first virtual connection and the first existing node and a second weighting coefficient representing a number of adjacent nodes to the second existing node, and the first total metric

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value is calculated as a sum of the first weighted metric value and the second weighted metric value divided by the sum of the first and second weighting coefficients, and

when the second total metric value is calculated, a third weighted metric value is calculated as a product of a metric value of the second virtual connection from the new node to the second existing node and the second weighting coefficient, a fourth weighted metric value is also calculated as a product of a metric value of a route from the new node to the first existing node via the second virtual connection and the second existing node and the first weighting coefficient, and the second total weighted metric value is calculated as a sum of the third weighted metric value and the fourth weighted metric value divided by the sum of the first and second weighting coefficients.

Claim 7 (Previously Presented): The node device according to Claim 1, wherein the acquirer unit periodically acquires updated node-node connection information by broadcasting an update notification to the first existing node and the second existing node.

Claim 8 (Previously Presented): The method according to Claim 6, further comprising:

periodically acquiring node-node connection information by broadcasting an update message to the first existing node and the second existing node.

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